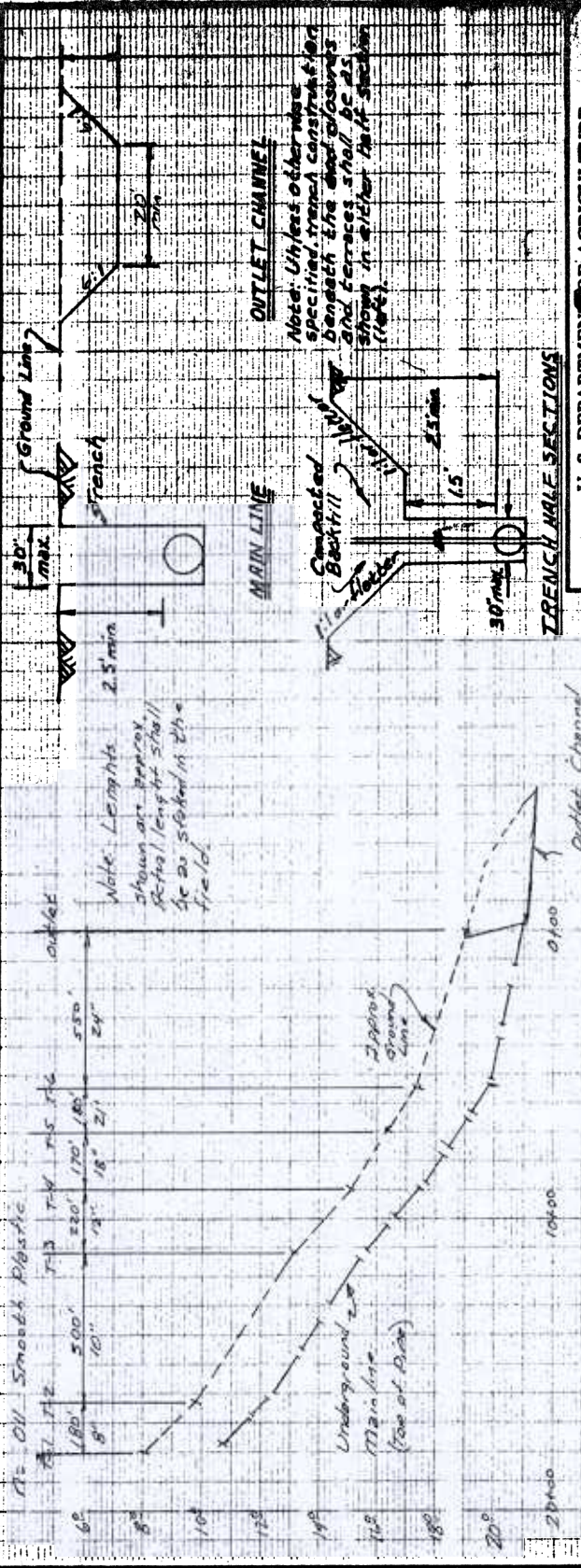


No.	T-1	T-2	T-3	T-4	T-5	T-6	Other
Sta.	18400	16420	14420	9400	7450	5400	0400
Length	180'	71'	500'	220'	180'	153'	550'
Designation	6"	7"	10"	12"	14"	17"	19"
Ground L.	8"	9"	13"	15"	16"	17"	19"
Top of Main	105'	122'	155'	175'	188'	198'	210'
Line L.	1.7	3.3	3.3	2.0	1.5	1.0	2.12
44 Ft. Long	17/180	33/600	2/220	13/70	10/180	56	24/550
"H.C.L. Slope	.94	.66	.91	.96	.56	.40	
Quantity (ft)	1.12	.73	1.31	6.5	1.26	1.91	
Quantity (ft)	1.12	.8	1.4	6.5	1.3	1.4	
Area (sq. ft.)	1.12	1.92	3.3	9.8	11.1	12.5	
Dist. (ft.)	8"	10"	12"	18"	24"	24"	



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

DESIGNED BY
2 m.

CHECKED BY

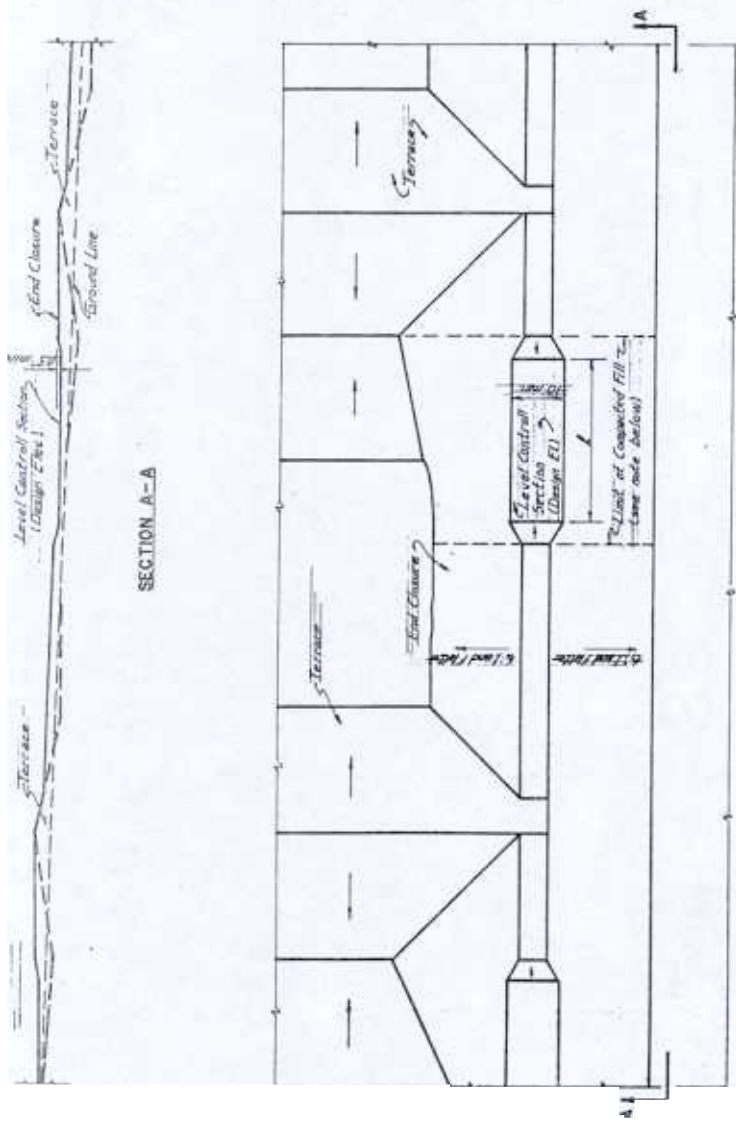
DATE: 7/85

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Exhibit 7

PROFILE

Mainline



PLAN

END CLOSURE DETAILS

Time	Design	Maxim	T	Cham	Time	Time	Approx. Ratio
in	ft	25-55			1	2	10000
T-1	60	55	25	12	12	12	100
T-2	70	74	15	12	12	12	100
T-3	104	95	25	12	12	12	100
T-4	120	115	25	12	12	12	100
T-5	148	145	24	12	12	12	100
T-6	152	15	27	12	12	12	100

[illegible]

may be $62\frac{1}{2}''$ at each End Closure

100

The vertical terrace shall be constructed to the larger dimension of either A or the Design C), section 8.5 PL. Other than the level surface of section, sequencing of earth fill will not be required. However, terraces shall be approved by the following means to allow for settlement:

- 1) 5% for intergranular and phyllite adjustment
- 2) 10% for mortar, pit fines, and starter equipment
- 3) 5% for stemming material, distributed material and starter equipment.

[illegible]

Exhibit 7
Example Problem.



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

[illegible]

SOIL CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS
(Texas)
GRASSED WATERWAY OR OUTLET

SCOPE

Work shall consist of shaping the waterway channel or outlet and placing excavated material as specified.

2. LOCATION

The planned location of the waterway or outlet shall be as shown on furnished drawings or as staked in the field.

3. SITE PREPARATION

The site shall be free of all trees, brush, stumps, and other objectionable material that will interfere with construction or proper functioning of the waterway or outlet.

4. DIMENSIONS OF INSTALLATION

Waterways or outlets shall be constructed to equal or exceed the dimensions specified on furnished drawings or as staked in the field.

5. MATERIAL

Excavated material will be used to construct side banks, roads, or other fills as specified. Enough topsoil should be left in the shaped area to support a good cover of vegetation. Where shallow areas are encountered, topsoil should be added to the area to support a vegetative cover.

6. MEASUREMENT

(Method 1) When shaping is performed and the amount of work is determined on an acreage basis, at least one representative cross section will be made to determine that designed dimensions have been obtained. When accurate measurements were made during design and layout, only sufficient checks will be made to determine that

acres previously determined have been performed according to design.

Acres will be measured to the nearest 0.1 acre.

(Method 2) When shaping is performed and the amount of work is determined on a yardage basis, sufficient cross sections will be made to show that design dimensions have been equalled or exceeded. The measurement for payment will be the design yardage. Volume will be computed to the nearest cubic yard.

7. CONSTRUCTION DETAILS

A. This item of work consists of construction of the emergency bypass and the outlet channel as shown on the drawings and staked in the field.

B. PUBLIC UTILITIES

All known utilities have been shown on the drawings. However, absence of utilities on construction drawings is not assurance that no utilities are present at the site. The landowners or operators and contractors may be liable for any damage resulting from disruption of service caused by construction activities. If a utility is discovered that is not shown on the construction drawing, work shall be ceased immediately and an SCS representative notified.

C. REMOVAL OF WATER

It will be the contractors responsibility to perform work required for the removal of surface or groundwater as needed to perform the required construction in accordance with the specifications and drawings. The contractor will be responsible for the repair of any damage incurred by failure of his dewatering system.

D. Excavated material shall be used to construct end closures and terraces as shown on the drawings.

E. Method 1 will be used for measurement

SOIL CONSERVATION SERVICE
432 CONSTRUCTION SPECIFICATIONS

UNDERGROUND OUTLET

1. SCOPE

Work shall consist of furnishing and installing a conduit beneath the ground surface to a specified grade.

2. LOCATION

The planned location of the underground outlet shall be as shown on furnished drawings or as staked in the field with controlled elevations.

3. MATERIALS

Unless otherwise designated, pipe materials used for the underground outlet shall be new and shall comply with one of the following:

TYPE	SPECIFICATION
Polyvinyl Chloride(PVC) pipe or tubing & fittings	ASTM D-1785, or D-2241, or D-2672, or D-2740, or D-3033, or D-3034 type PSM or PSP, or PIP meeting requirements of SCS Conservation Practice Standard 430-DD or 430-EE or corrugated PVC tubing meeting requirements of SCS Conservation Practice standard 606.
Polyethylene (PE) pipe or tubing & fittings	ASTM D-2104, or D-2239 or D-2447 or D-2737, or D-3035 or SCS Conservation Practice standard 606.
Acrylonitrile-Butadiene- Styrene (ABS) Pipe	ASTM D-1527, or D-2282
Asbestos-Cement	ASTM C-663 or C-428, or C-500 or requirements of SCS Conservation practice standard 430-BB.
Concrete pipe or tile	ASTM C-301, or C-412, or C-118, or C-497, or C-14 or C-76 or C-478.
Steel pipe	Federal Specification WW-P-402 or SCS Conservation practice standard 430-FF
Aluminum pipe	Federal Specification WW-P-405 or SCS Conservation practice standard 430-AA

Joints and Connections

All joints and connections shall be made so as to withstand the design pressure for the pipeline without leakage and shall leave the inside of the line free of any obstruction that may tend to reduce its capacity below design requirements.

All fittings, such as couplings, reducers, bends, tees and crosses, shall be installed in accordance with the recommendations of the pipe manufacturer.

4. PUBLIC UTILITIES

All known utilities have been shown on the drawings. However, absence of utilities on construction drawings is not assurance that no utilities are present at the site. The landowners or operators and contractors may be liable for any damage resulting from disruption of service caused by construction activities. If a utility is discovered that is not shown on the construction drawing, work shall be ceased immediately and an SCS representative notified.

5. REMOVAL OF WATER

It will be the contractors responsibility to perform work required for the removal of surface or groundwater as needed to perform the required construction in accordance with the specifications and drawings. The contractor will be responsible for the repair of any damage incurred by failure of his dewatering system.

6. TRENCH CONSTRUCTION

Trench width at any point below top of pipe should be only wide enough to permit the pipe to be easily placed and joined and to allow the initial backfill material to be uniformly placed under the haunches and along the sides of the pipe. The maximum trench width shall be 30 inches.

The trench bottom shall be uniform so that the pipe will lay on the bottom without bridging. Clods, rocks and uneven spots which could damage or cause non-uniform support to the pipe shall be removed.

Where rocks, boulders, or any other material which might damage the pipe are encountered, the trench bottom shall be undercut a minimum of four inches below final grade and filled with bedding material consisting of sands or compacted fine-grained soils.

Provisions shall be made to insure safe working conditions where unstable soil, trench depth, or other conditions are such as to impose safety hazard to personnel working in the trench.



7. PLACEMENT

Pipe shall be placed in the trench and allowed to come to within a few degrees of the temperature that it will have after complete covering prior to any backfill beyond shading and prior to connecting to other facilities. Care shall be taken to prevent permanent distortion and pipe damage when handling during unusually warm or cold weather. The pipe shall be uniformly and continuously supported over its entire length on firm stable material. Blocking or mounding shall not be used to bring the pipe to final grade.

For pipe with belled ends, bell holes shall be excavated in the bedding material as needed to allow for unobstructed assembly of the joint and to permit the body of the pipe to be in contact with the bedding material throughout its length.

Unless otherwise specified, the depth of cover shall not be less than 2 feet nor more than 4 feet.

8. INITIAL BACKFILL

Initial backfill is backfill placed from the bottom of the trench to one foot above the installed pipe. Either the hand, mechanical, or water packing methods are optional.

The initial backfill material shall be selected soil or sand free from rocks or stones larger than one inch in diameter and earth clods greater than approximately two inches in diameter. At the time of placement, the moisture content of the material shall be such that the required degree of compaction can be obtained with the backfill method to be used. The initial backfill material shall be so placed that the pipe will not be displaced, excessively deformed, or damaged.

When hand or mechanically backfilling, the initial fill shall be compacted firmly around and above the pipe as required to provide adequate lateral support to the pipe.

When water packing is used, the pipeline first shall be filled with water. The initial backfill, before wetting, shall be of sufficient depth to insure complete coverage of the pipe after consolidation has taken place. Water packing is accomplished by adding water to diked reaches of the trench in such quantity as to thoroughly saturate the initial backfill without excessive pooling of water. After saturation, the pipeline shall remain full until after final backfill is made. The wetted fill shall be allowed to dry until firm before final backfill is begun.

9. FINAL BACKFILL

Final backfill is backfill placed in the trench above the initial backfill. Final backfill material shall be free of large rocks, frozen clods and other debris greater than three inches in diameter. The material shall be placed and spread in approximately uniform layers in such a manner that there will be no unfilled spaces in the backfill and the backfill will be level with the natural ground or at the design grade required to provide the minimum depth of cover after settlement has taken place. Rolling equipment shall not be used to consolidate the final backfill until the specified minimum depth of cover has been placed.

All special backfilling requirements of the pipe manufacturer shall be met.

10. CERTIFICATION AND GUARANTEE

All materials shall conform to these minimum requirements and to tests prescribed in the applicable ASTM Specification.

The acceptance of materials used will be by onsite approval based on properly marked material showing compliance with the applicable ASTM Specification.

The installing contractor shall certify to the purchaser that the materials and installation comply with the requirements of these specifications. He shall furnish the purchaser a written guarantee against defective workmanship and materials to cover a period of not less than one year. He shall record on the guarantee the manufacturer's name and marking of the pipe material used.

The installing contractor shall furnish the Soil Conservation Service a copy of his certification and guarantee, which will be made a part of the supporting records of the underground outlet.

11. MEASUREMENT

The amount of underground outlet completed as specified will be determined by measuring the laying length, in feet, of each size and kind of pipe installed. The number and size of inlets, guards, guard posts and outlet pipes measured will be as specified on the drawings. The quantity of each component of the underground outlet which average cost has been established in the county will be measured.

12. CONSTRUCTION DETAILS

This item shall consist of furnishing and installing all items necessary to complete the underground outlet as shown on the drawings and as staked in the field.

SOIL CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS

TERRACES
Terrace, Gradient

1. SCOPE

Work shall consist of constructing the terrace channels, ridges, and filling and leveling as required.

2. LOCATION

The location of the terrace shall be as shown on furnished drawings or as staked in the field.

3. SITE PREPARATION

All old terraces, fence rows, brush, and tall standing vegetation shall be removed from the area occupied by the terrace ridge and the area from which the earthen construction material will be taken.

4. MATERIAL

Materials for earthfills shall be obtained from excavation in the channel or other designated areas, and shall be free of objectionable materials as brush, roots, and rock particles that endanger the performance of the terrace.

5. PLACEMENT OF EARTHFILL

Terraces shall be constructed to the dimensions specified on the drawings, or as staked in the field. All fills shall be full-bodied with cross section conforming to that specified at all stations. The terrace channels, side slopes, ridges, cut areas, and fill areas shall be finished to a smoothness so the surface can be readily traveled upon by farm type equipment.

6. OUTLETS

The outlet of the terrace shall be equal in square feet to the requirements for channel capacity of the terrace.

7. MEASUREMENT

Measurement for the amount of terraces completed will be determined by measuring the length in feet of the terrace channel or ridge as applicable.

8. CONSTRUCTION DETAILS

A. PUBLIC UTILITIES

All known utilities have been shown on the drawings. However, absence of utilities on construction drawings is not assurance that no utilities are present at the site. The landowners or operators and contractors may be liable for any damage resulting from disruption of service caused by construction activities. If a utility is discovered that is not shown on the construction drawing, work shall be ceased immediately and an SCS representative notified.

B. REMOVAL OF WATER

It will be the contractors responsibility to perform work required for the removal of surface or groundwater as needed to perform the required construction in accordance with the specifications and drawings. The contractor will be responsible for the repair of any damage incurred by failure of his dewatering system.

C. Terraces shall be constructed to provide a positive grade to the outlet. The average terrace grades shall not exceed the following:

- 1) 1.0 ft per 100 ft for the upper 400 ft and the lower 400 ft for terraces with underground outlets.
- 2) .8 ft per 100 ft for the next 400 ft
- 3) .6 ft per 100 ft for the remainder of the terraces

Maximum terrace grades shall not exceed average allowable grades by more than 50%. Cutting and filling, building the terrace from the lower side, or other approved construction procedures may be required to assure terrace grade restrictions are met.

S-600-B

- D. The minimum cross section of the flow area for the terrace channel shall be 21 sq. ft.
- E. SECTION 6 OUTLETS shall apply to the emergency bypass area designated on the plans and staked in the field.
- F. SECTION 7 MEASUREMENT The length of terrace will include terraces built to the minimum height specified on the drawings plus the length of the end closures. Terraces built to the design E1 + .5 ft shall be measured to the nearest cu. yd. by using the neat lines shown on the drawings.